

In the Drawings

Fig. 1 is amended to add Yes/No modifiers to the decision blocks 118 and 122.

Attachments

Annotated Sheet

Replacement Sheet

REMARKS

The Examiner is thanked for the thorough examination of the present application.

The Office Action, however, has tentatively rejected all claims under 35 U.S.C. § 101. In response, Applicant cancels independent claim 24, and provides the following remarks in connection with independent claims 1 and 12.

Drawing Objections

The Office Action objected to Figure 1 for failing to include Yes/No modifiers on the decision blocks denoted by reference numbers 118 and 122. Applicant has amended Figure 1 to provide appropriate modifiers. Accordingly, the objection has been accommodated and should be withdrawn.

Claim Rejections - 35 U.S.C. § 101

Independent claims 1, 12, and 24 have been rejected under 35 U.S.C. § 101 because the claimed invention is allegedly directed to non-statutory subject matter. Applicant disagrees with this rejection. Notwithstanding, Applicant has made certain amendment to even more concretely define proper patentable subject matter.

In traversing these rejections, Applicant makes the following general comments with respect to the rejections.

A. Official Gazette Notice of November 22, 2005

As an initial matter, Applicant references for the record the OG Notice of November 22, 2005 (which is not binding authority as to the patentability of Applicant's claims). As expressed in the OG Notice:

These Guidelines do not constitute substantive rulemaking and hence do not have the force and effect of law. These Guidelines have been designed to assist USPTO personnel in analyzing claimed subject matter for compliance with substantive law. Rejections will be based upon the substantive law and it is these rejections which are appealable. Consequently, any failure by USPTO personnel to follow the Guidelines is neither appealable nor petitionable.

Official Gazette Notice of November 22, 2005, Section I. Although the OG Notice does not comprise binding authority, Applicant discusses the OG Notice in the following in appreciation of the fact that the Examiner is bound to follow its guidelines. As the below analysis shows, Applicant's claims are proper under 35 U.S.C. § 101 as well as the guidelines described in the OG Notice.

The OG Notice first provides assistance to examiners in understanding recent court decisions that interpret the requirements of 35 U.S.C. § 101. In particular, the OG Notice explicitly acknowledges the breadth of what may qualify as a "patentable invention":

As the Supreme Court held, Congress chose the expansive language of 35 U.S.C. Sec. 101 so as to include "anything under the sun that is made by man." *Diamond v. Chakrabarty*, 447 U.S. 303, 308-09, 206 USPQ 193, 197 (1980). . . .

The plain and unambiguous meaning of section 101 is that any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may be patented if it meets the requirements for patentability set forth in Title 35, such as those found in sections 102, 103, and 112. The use of the expansive term "any" in section 101 represents Congress's intent not to place any restrictions on the subject matter for which a patent may be obtained beyond those specifically recited

in section 101 and the other parts of Title 35 . . . Thus, it is improper to read into section 101 limitations as to the subject matter that may be patented where the legislative history does not indicate that Congress clearly intended such limitations.

Official Gazette Notice of November 22, 2005, Section IV.A.

Despite such inclusive language, the OG Notice indicates that there are limitations to what can be patented:

Federal courts have held that 35 U.S.C. Sec. 101 does have certain limits. First, the phrase "anything under the sun that is made by man" is limited by the text of 35 U.S.C. Sec. 101, meaning that one may only patent something that is a machine, manufacture, composition of matter or a process. . . .

The subject matter courts have found to be outside of, or exceptions to, the four statutory categories of invention is limited to abstract ideas, laws of nature and natural phenomena.

Official Gazette Notice of November 22, 2005, Section IV.A. Therefore, an invention is patentable under 35 U.S.C. § 101 as long as it: (i) falls within one of the explicit statutory categories identified in 35 U.S.C. § 101 and (ii) does not comprise one of an abstract idea, a law of nature, or a natural phenomenon (i.e., the three "judicial exceptions").

The OG Notice next provides explicit instructions to examiners as to how to determine whether a claim falls within a statutory category of 35 U.S.C. § 101:

To properly determine whether a claimed invention complies with the statutory invention requirements of 35 U.S.C. 101, USPTO personnel must first identify whether the claim falls within at least one of the four enumerated categories of patentable subject matter recited in section 101 (process, machine, manufacture or composition of matter).

Official Gazette Notice of November 22, 2005, Section IV.B. Later, the OG Notice provides explicit instructions to examiners as to how to determine whether a claim falls within one of the judicial exceptions:

Determining whether the claim falls within one of the four enumerated categories of patentable subject matter recited in 35 U.S.C. Sec. 101 (process, machine, manufacture or composition of matter) does not end the analysis because claims directed to nothing more than abstract ideas (such as mathematical algorithms), natural phenomena, and laws of nature are not eligible and therefore are excluded from patent protection. . . .

. . . In evaluating whether a claim meets the requirements of section 101, the claim must be considered as a whole to determine whether it is for a particular application of an abstract idea, natural phenomenon, or law of nature, rather than for the abstract idea, natural phenomenon, or law of nature itself.

Official Gazette Notice of November 22, 2005, Section IV.C.

The OG Notice further states that a claim that relates to an abstract idea, natural phenomenon, or law of nature may still be patentable:

While abstract ideas, natural phenomena, and laws of nature are not eligible for patenting, methods and products employing abstract ideas, natural phenomena, and laws of nature to perform a real-world function may well be.

Official Gazette Notice of November 22, 2005, Section IV.C. On that issue, the OG Notice expresses that "practical applications" of the judicial exceptions can be patentable and provides specific guidelines to aid examiners in determining whether a practical application of one of the judicial exceptions is claimed:

To satisfy section 101 requirements, the claim must be for a practical application of the Sec. 101 judicial exception, which can be identified in various ways:

- The claimed invention "transforms" an article or physical object to a different state or thing.
- The claimed invention otherwise produces a useful, concrete and tangible result, based on the factors discussed below.

Official Gazette Notice of November 22, 2005, Section IV.C.2. Therefore, *if* a claim is related to one of the judicial exceptions there must be an appropriate “transformation” or otherwise must be a “useful, concrete, and tangible result.”

From the foregoing, it is apparent that the issue of whether a “tangible result” is claimed is *only* to be considered if: (1) the claimed invention concerns one of the judicial exceptions (i.e., abstract ideas, natural phenomena, and laws of nature) *and* (2) the claimed invention does not “transform” an article or physical object to a different state or thing.

B. Analysis of Claim 1 in view of the OG Notice Guidelines

From the discussion of the OG Notice Guidelines provided above, a determination as to the compliance of a claim with 35 U.S.C. § 101 comprises first determining whether the claim falls within one of the invention categories explicitly identified in Section 101 and, if so, determining whether the claim falls within any of the judicial exceptions. If the claim falls within a statutory category and does not fall within one of the judicial exceptions, the claim is proper under 35 U.S.C. § 101 and no further analysis is necessary. However, if the claim relates to one of the judicial exceptions, the Examiner must further determine whether the claimed invention pertains to a “practical application” that transforms an article or physical object to a different state or thing or whether the claimed invention otherwise produces a useful, concrete and tangible result. Applicant applies the above form of analysis to claim 1 in the following.

1. Identification of Statutory Category

As stated above, the first step in determining whether a claim complies with 35 U.S.C. § 101 is to determine whether the claim falls within one of the statutory categories explicitly identified in Section 101. Those categories include “process, machine, manufacture, or composition of matter.” 35 U.S.C. § 101.

In this case, Applicant's claim 1 is explicitly directed toward a “method” and recites various actions that are performed as part of the claimed method. Applicant therefore submits that it is clear that claim 1, and its dependents, is directed to a “process,” which is a statutory category explicitly mentioned in 35 U.S.C. § 101. Therefore, Applicant's claims satisfy this part of the Section 101 analysis.

2. Consideration of Judicial Exceptions

The OG Notice Guidelines make clear that claims that fall within a statutory category but also fall within judicial exception may not be patentable. As stated in the OG Notice, the judicial exceptions include: abstract ideas, natural phenomena, and laws of nature.

In the present case, Applicant's claim 1 is clearly not directed to any of an abstract idea, natural phenomenon, or law of nature. As described above, claim 1 recites a “method for switching among a plurality of modes for ADSL modem operation”. Therefore, described is a process in which a physical component (i.e., a “ADSL modem”) is operated. Furthermore, claim 1 defines the various actions performed during such operation, including “determining a far end modem's capability for supporting one or more of a base mode, a first mode and a second mode”, “determining a loop length between a near end

modem and the far end modem”, “determining a capacity in an upper band of the first mode and the second mode”, and “selecting an appropriate mode based on a combination of the far end modem’s capability, the loop length and the capacity in the upper band.”. Each of these actions comprises a physical action that is performed on a physical structure or component. Given that fact, such actions cannot reasonably be considered to be an “abstract idea.” Specifically, physical actions on physical things are taken, not merely contemplated. Furthermore, such actions cannot reasonably be considered “natural phenomena.” Specifically, the described actions do not naturally occur in nature. Moreover, each action on its face has nothing to do with any law of nature.

In view of the above, Applicant’s claim 1: (i) falls within an explicit statutory category of 35 U.S.C. § 101 and (ii) does *not* fall within one of the judicial exceptions. Applicant therefore submits that, under the OG Notice Guidelines (which are to be applied by the Examiner), claim 1 fully complies with 35 U.S.C. § 101 and no further analysis is required.

3. Consideration of “Practical Application”

As stated above, further analysis is required in cases in which a claim, although falling within a statutory category, falls within a judicial exception. Specifically, the claim must be evaluated to determine if it pertains to a “practical application.” Although Applicant believes that it is clear that claim 1 does *not* fall within any of the judicial exceptions, Applicant provides the following analysis regarding the practical applications of Applicant’s claims for the Board’s consideration.

a. Transformation of an Article

The OG Notice Guidelines identify a first factor to consider when determining whether a claim is for a practical application as “[t]he claimed invention ‘transforms’ an article or physical object to a different state or thing.”

In the present case, Applicant’s claimed method clearly does “transform” an article in the manner described in the OG Notice. In particular, Applicant defines “selecting an appropriate mode based on a combination of the far end modem’s capability, the loop length and the capacity in the upper band.” Such a mode selection results in a physical change in the ADSL modem that is defined in the claim.

In view of the above, claim 1 is clear “for a practical application” and therefore complies with 35 U.S.C. § 101. No further analysis is necessary. *See Official Gazette Notice of November 22, 2005, Section IV.C.2.a.*

b. Useful, Concrete, and Tangible Result

According to the OG Notice, *if* the examiner is not able to identify transformation, the examiner must proceed to determining whether the claim provides a practical application that produces a useful, concrete, and tangible result. Clearly, the mode selection defined by the claim defines a useful result. The Examiner, however, has not addressed this point.

As made clear in the OG Notice:

In determining whether the claim is for a "practical application," *the focus is not on whether the steps taken to achieve a particular result are useful, tangible and concrete*, but rather that the final result achieved by the claimed invention is "useful, tangible and concrete."

Official Gazette Notice of November 22, 2005, Section IV.C.2.b (emphasis added). Again, “[i]n evaluating whether a claim meets the requirements of section 101, the claim must be considered as a *whole*.” *Official Gazette Notice* of November 22, 2005, Section IV.C (emphasis added). Given the preamble and last element of claim 1, it is clear that the Examiner’s analysis does not comply with the OG Notice Guidelines.

Irrespective of the above, Applicant submits that claim 1 clearly produces a tangible result Section IV.C.2.b(2) the OG Notice provides an indication of what qualifies as a “tangible result”:

The tangible requirement does not necessarily mean that a claim must either be tied to a particular machine or apparatus or must operate to change articles or materials to a different state or thing. However, the tangible requirement does require that the claim must recite more than a Sec. 101 judicial exception, in that the process claim must set forth a practical application of that Sec. 101 judicial exception to produce a real-world result. Benson, 409 U.S. at 71-72, 175 USPQ at 676-77 (invention ineligible because had “no substantial practical application.”). “[A]n application of a law of nature or mathematical formula to a . . . process may well be deserving of patent protection.” Diehr, 450 U.S. at 187, 209 USPQ at 8 (emphasis added); see also Corning, 56 U.S. (15 How.) at 268, 14 L.Ed. 683 (“It is for the discovery or invention of some practical method or means of producing a beneficial result or effect, that a patent is granted . . .”). In other words, the opposite meaning of “tangible” is “abstract.”

Official Gazette Notice of November 22, 2005, Section IV.C.2.b(2). In view of the above excerpt, a “tangible result” is produced if the claimed invention produces a “real-world result” as opposed to a mere abstraction, such an application of a law of nature or a mathematical formula. In the present case, Applicant’s claim 1 clearly does describe a “real-world result.” Specifically, practice of Applicant’s claimed method results in a selection of an appropriate mode of operation for an ADSL modem. This is a real-world process involving a real-world article (ADSL modem). Clearly then, claim 1 is directed to a practical application that produces a tangible result.

In view of the above, Applicant submits that claim 1, and its dependents (claims 2-11 and 23), clearly defines a practical application that produces a useful, concrete, and tangible result, and as such fully satisfies the statutory requirements of 35 U.S.C. § 101.

Independent claim 12

With regard to claim 12, the Office Action stated that:

"Even though claim 12 is written in a means-plus-function format, for the purpose of this rejection it is being treated as though it were a method claim. If the functionally-defined disclosed means and their equivalents are so broad that they encompass any and every means for performing the recited functions, the apparatus claim is really to the method or series of functions itself and as such should be treated as a method claim. Walter, 205 USPQ at 408. Therefore, the rejection of claim 1 applies to claim 12 as well."

This rejection is improper and should be withdrawn. The Walter case upon which the Examiner relies was decided by the Board of Patent Appeals in 1980. The application of the Walter case, however, was clarified and significantly limited by the holding in *In re Allapat*, 33 F.3d 1526 (Fed. Cir. 1994). The *Allapat* decision was rendered some 14 years after Walter, and was rendered by the U.S. Court of Appeals for the Federal Circuit, which has controlling authority over such decisions by the U.S. Patent & Trademark Office. As such, the Patent Office is obligated to follow the precedent and legal framework of the *Allapat* decision.

Significantly, in *Allapat*, the Federal Circuit reversed a decision of Board of Patent Appeals and Interferences, which held means-plus-function claims unpatentable under 35 U.S.C. § 101, for essentially the same reasons that the Examiner is presently rejecting claim 12. In *Allapat*, the subject invention related generally to a means for creating a

smooth waveform display in a digital oscilloscope. The means-plus-function claim (claim 15) in question in the Allapat application recited:

15. A rasterizer for converting vector list data representing sample magnitudes of an input waveform into anti-aliased pixel illumination intensity data to be displayed on a display means comprising:
 - (a) means for determining the vertical distance between the endpoints of each of the vectors in the data list;
 - (b) means for determining the elevation of a row of pixels that is spanned by the vector;
 - (c) means for normalizing the vertical distance and elevation; and
 - (d) means for outputting illumination intensity data as a predetermined function of the normalized vertical distance and elevation.

Like the Examiner of the present application, the Patent Office in the Allapat application relied upon the *Walter* decision as justifying its refusal to construe the claim under 35 U.S.C. § 112, sixth paragraph, and instead the PTO rationalized that because the claim was written completely in "means for" language and because these means clauses are read broadly in the PTO to encompass each and every means for performing the recited functions, claim 15 amounted to nothing more than a process claim wherein each means clause represents only a step in that process.

The Federal Circuit clearly and unequivocally stated that this approach by the PTO was wrong, and reversed the Board's decision to uphold the Examiners' rejection. Importantly, as it relates to the present claim 7, the Federal Circuit in Allapat stated:

As recently explained in *In re Donaldson*, 16 F.3d 1189, 1193, 29 USPQ2d 1845, 1050 (Fed.Cir.1994), the PTO is not exempt from following the statutory mandate of § 112 ¶ 6, which reads:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

35 U.S.C. § 112, paragraph 6 (1988) (emphasis added). The Board majority therefore erred as a matter of law in refusing to apply § 112 ¶ 6 in

rendering its § 101 patentable subject matter determination.

Given Alappat's disclosure, it was error for the Board majority to interpret each of the means clauses in claim 15 so broadly as to "read on any and every means for performing the functions" recited, as it said it was doing, and then to conclude that claim 15 is nothing more than a process claim wherein each means clause represents a step in that process. Contrary to suggestions by the Commissioner, this court's precedents do not support the Board's view that the particular apparatus claims at issue in this case may be viewed as nothing more than process claims. The cases relied upon by the Commissioner, namely...[citations omitted], *In re Walter*, 618 F.2d 758, 205 USPQ 397 (CCPA 1980), [citations omitted] differ from the instant case. In *Abele*, *Pardo*, and *Walter*, given the apparent lack of any supporting structure in the specification corresponding to the claimed "means" elements, the court reasonably concluded that the claims at issue were in effect nothing more than process claims in the guise of apparatus claims.

(*In re Allapat* at 1541).

As noted in Allapat, the PTO can ONLY construe means plus function claims like method claims when there is absolutely NO support in the specification to support an interpretation under 35 U.S.C. § 112, paragraph six. That is not the case here. Like the system in Allapat, the present application DOES provide sufficient support in the specification to properly construe claim 12 under 35 U.S.C. § 112, paragraph six. For example, the application (beginning on page 14) states:

FIG. 4 is a diagram illustrating a **system** for selecting an optimal operation mode according to an embodiment of an aspect of the present inventions. FIG. 4 illustrates delivery of broadband communication services via ADSL over the POTS network. A **central office 410** may be configured to receive broadband services which it assembles via **central office ADSL line cards** for transmission over a POTS phone line to a **customer premise equipment 420**. Examples of broadband services may include Internet, video conferencing, telephone services, movies on demand, broadcast media and/or other services. **Customer premise equipment 420** may process and distribute the services to appropriate destination devices, such as computers, televisions, telephones, facsimile machines and/or other devices. **Central office 410 and customer premise equipment 420** may communicate via phone line 430 or other communication link or medium.

In accordance with the embodiments of the present invention, CO 410 may include various **modules**, including code and computer program

instructions, to perform certain functions. For example, *Determine CPE capability module 410 may determine whether the CPE may operate in certain modes* (e.g., first mode, second mode, etc.). *Loop calculation module 414 may calculate the loop length between the CO 410 and the CPE 420.* *The loop length may be determined by a total AGC calculation.* *Determine capacity module 416 may determine the capacity of upper bins.* For example, the determination may be based on historical data. *CPE 420 may provide the CO 410 with the CPE's capability via CPE capability module 422.* Other functions and modules may be supported by both the CO 410 and the CPE 420.

(Emphasis added.) Emphasis has been added to the above-quoted paragraphs to demonstrate sufficient support for proper apparatus interpretation of the claim. For example, the specification above describes how a "central office ADSL line card" may include various "modules." Line cards are well known by persons skilled in the art to comprise circuitry in the form of hardware (e.g., ASICs) or a combination of semiconductor logic executing software routines. This can be readily verified by the Examiner by performing a simple Internet search. Indeed, the undersigned performed such a search for the phrase "central office line card" and received a number of "hits." Attached as Exhibit A is one such hit. Exhibit A, as well as many other similar sources reflect how persons skilled in the art would view a line card to be.

Like the "rasterizer" of Allapat, a central office line card of the present application constitutes clearly patentable subject matter under 35 U.S.C. § 101. Since such has been described in the specification of the present application, pursuant to the holding in *In re Allapat*, the Examiner cannot properly treat the "means plus function" elements of claim 12 like method elements, and instead the Examiner must properly construe claim 12 in accordance with 35 U.S.C. § 112, paragraph six.

For at least the foregoing reasons, the rejection of claim 12 should be withdrawn. With the withdrawal of this rejection, claims 12-22 are in condition for allowance.

Independent claim 24

Applicant has cancelled claim 24, rendering the rejection of that claim moot.

In view of the foregoing, it is believed that all pending claims are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

No fee is believed to be due in connection with this submission. If, however, any fee is deemed to be payable, you are hereby authorized to charge any such fee to Deposit Account No. 20-0778.

Respectfully submitted ,

/Daniel R. McClure/

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Annotated Sheet

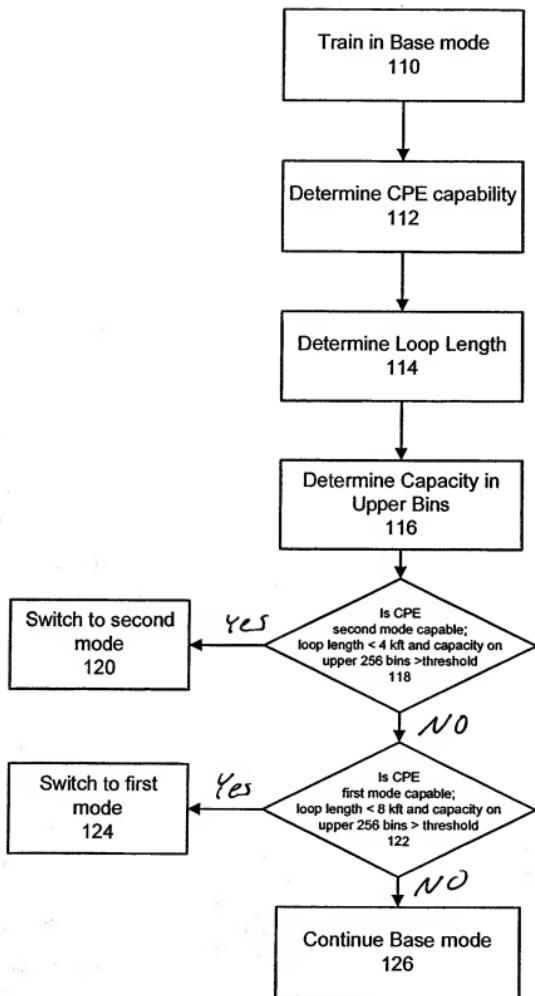


Figure 1